WHAT IS CLAIMED IS:

1. A wideband multi-mode antenna, comprising:

an antenna element made from a single right triangularly shaped sheet of conductive material, the material having a height and a base dimension;

wherein the planar material has a rolled shape, such that the antenna has the height of the planar material, a number of turns having spacing between them, a base diameter, and a pointed tip.

2. The antenna of Claim 1, wherein the spacing between the turns is uniform.

3. The antenna of Claim 1, further comprising a dielectric material between the turns.

4. The antenna of Claim 1, wherein the ratio of the height to the diameter is less than 15:1.

5. The antenna of Claim 1, wherein the ratio of the height to the diameter is greater than 5:1.

6. The antenna of Claim 1, wherein the number of turns is less than four .

7. The antenna of Claim 1, wherein the conductive material is a mesh material.

8. The antenna of Claim 1, wherein the planar material has a curved hypotenuse.

9. The antenna of Claim 1, further comprising a radome enclosing the antenna element.

10. The antenna of Claim 1, wherein the height is approximately in the range of 0.2 to 0.24 of the wavelength of a low frequency of operation.

11. The antenna of Claim 1, wherein the diameter is approximately 0.02 of the wavelength of a low frequency of operation.

12. The antenna of Claim 1, further comprising a ground plane upon which the antenna element is mounted.

13. The antenna of Claim 12, wherein the spacing between the ground plane and the base of the antenna element results in a ratio of approximately 50:1, representing the ratio of total height of the antenna above the ground plane to the spacing.

14. The antenna of Claim 1, wherein the height is approximately 0.86 times c divided by 4f, where f is a desired low frequency of operation.

15. The antenna of Claim 1, wherein the base is approximately the height divided by K, where K is a constant ranging from 1.3 to 1.7.

16. The antenna of Claim 1, further comprising a dielectric material between the turns.

17. The antenna of Claim 1, wherein the thickness of the conductive material is less than 0.002 of the height.

18. The antenna of Claim 1, further comprising a feed point at the innermost point of the base.

19. A diopole type antenna, comprising:

two antenna elements, each made from a single right triangularly shaped sheet of conductive material, having a height and a base dimension;

wherein the planar material has a rolled shape, such that the antenna has the height of the planar material, a number of turns having spacing between them, a base diameter, and a pointed tip;

wherein the antenna elements are connected to form a dipole.

20. The antenna of Claim 19, wherein the antenna elements form mirror images.

21. The antenna of Claim 19, wherein the antenna elements form reverse images.

22. A method of manufacturing an antenna, comprising the steps of:

forming a right-triangularly shaped sheet of conductive material, having a height and a base dimension; and

rolling the material along the height dimension, to form the antenna such that the antenna has the height of the planar material, a number of turns having spacing between them, a base diameter, and a pointed tip.

23. The method of Claim 22, wherein the rolling step is performed such that the spacing between turns is uniform.

24. The method of Claim 22, wherein the rolling step is performed such that the ratio of the height to the diameter is less than 15:1.

25. The method of Claim 22, wherein the rolling step is performed such that the ratio of the height to the diameter is greater than 5:1.

26. The method of Claim 22, wherein the height is approximately 0.86 times c divided by 4f, where f is a desired low frequency of operation.

27. The method of Claim 22, wherein the base is approximately the height divided by K, where K is a constant ranging from 1.3 to 1.7.

28. The method of Claim 22, wherein the thickness of the conductive material is less than 0.002 of the height.

29. The method of Claim 22, wherein the forming step and the rolling step are performed to provide a height to diameter ratio that results in a desired VSWR.

30. The method of Claim 22, further comprising the step of affixing an antenna feed point to the base of the antenna.

31. The method of Claim 30, wherein the feed point is at the innermost point of the base.

32. The method of Claim 30, wherein the feed point is placed at a location that produces a desired VSWR.

33. The method of Claim 22, further comprising the step of adjusting the spacing between turns to provide a desired bandwidth.

34. The method of Claim 22, further comprising the step of placing a dielectric material between the turns.